DEMOUNTING AND MOUNTING PROCEDURES
FOR PASSENGER AND LIGHT TRUCK (LT) TIRES

REFER TO THE FOLLOWING FOR MORE INFORMATION:

TISB, Volume 33, “Inspection Procedures to Identify Potential ‘Zipper Ruptures’ in Steel Cord Radial Truck, Bus and Light Truck Tires”

TISB, Volume 40, “Tubeless Type Valves for Passenger and Light Truck Tires Including Tubeless Snap-In Tire Valve Installation Procedure”

TISB, Volume 41, “Tire Bead Lubricants, Mounting Aids, Bead Sealers, OEM Mobility Kits, Tire Sealants, Balancing Substances and Flammable Substances”

TISB, Volume 43, “Avoid Tire Bead Damage on Tire Mounting Machines that Secure the Rim From Underneath”

TISB, Volume 45, “Passenger and Light Truck Used Tires”

TISB, Volume 46, “Proper Tire Mounting of Low Aspect Ratio, High Performance Passenger and Light Truck Tires”

For Truck/Bus Tires, see RMA wall charts: “Demounting and Mounting Procedures for Truck/Bus Tires” and “Multipiece Rim Matching Chart”

For puncture repairs, see the RMA wall charts: “Puncture Repair Procedures for Passenger and Light Truck Tires” and “Puncture Repair Procedures for Truck/Bus Tires”

For tube-type tires and/or different types of mounting machines, contact the tire and/or machine manufacturer for specific instructions.

WARNING

There is a danger of serious injury or death if a tire of one bead diameter is installed on a rim or wheel of a different rim diameter. Always replace a tire with another tire of exactly the same bead diameter as the diameter of the rim on which it will be mounted.

For example: A 16” tire goes on a 16” rim. Never mount a 16” tire on a 16.5” rim. A 16.5” tire goes on a 16.5” rim. Never mount a 16.5” tire on a 16” rim. While it is possible to pass a 16” diameter tire over the lip or flange of a 16.5” size diameter rim, it cannot be inflated enough to position itself against the rim flange. If an attempt is made to seat the tire bead by inflating, the tire bead will break with explosive force and could cause serious injury or death.

Rims of different diameters and tapers cannot be interchanged. The following diagram illustrates the difference between rims of two different tapers and diameters:

The following diagram shows how beads of a 16” tire will not seat on a 16.5” rim. The beads cannot be forced out against the rim flanges by using more inflation pressure because this will break the beads and the tire will explode with force sufficient to cause serious injury or death.
Tire changing can be dangerous and should be done by trained personnel using proper tools and procedures. Always read and understand any manufacturer’s warnings contained in owner’s manuals, on the equipment, listed on websites and molded onto tire sidewalls.

Failure to comply with these procedures may result in faulty positioning of the tire and/or rim parts and cause the assembly to burst with explosive force sufficient to cause serious physical injury or death. Never mount or use damaged tires or rims.

Steel Cord Radial Medium and LT Tires

Any steel cord radial tire suspected of operating under inflated and/or over loaded must be approached with caution. Permanent damage due to operating a tire under inflated and/or over loaded cannot always be detected. Any tire known or suspected of being operated at 80 percent or less of normal operating inflation pressure and/or over loaded could possibly have permanent sidewall structural damage (steel cord fatigue).

Ply cords weakened by under inflation and/or over loading may break one after another, until a rupture occurs in the upper sidewall with accompanying instantaneous pressure loss and explosive force. This can result in serious injury or death.

Inflating beyond 40 psi inflation pressure when trying to seat the beads is a dangerous practice that may break a tire bead (or even the rim) with explosive force, possibly resulting in serious injury or death. After the beads are fully seated, pressure may be increased above 40 psi to operating pressures, as shown on the vehicle placard but not to exceed the maximum molded on the tire sidewall.

Never inflate beyond 40 psi to seat beads. Never stand, lean, or reach over the assembly during inflation.

Inspect both sides of the tire to be sure that the beads are evenly seated. If the tire is mounted on a machine that does not have a positive lock-down device to hold the wheel, inflation should be done in a safety cage or other restraining device. If both beads are not properly seated when pressure reaches 40 psi, completely deflate the assembly, reposition the tire and/or tube on the rim, relubricate, and reinflate.
DEMOUNTING AND MOUNTING PROCEDURES
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WARNING
Never, under any circumstance, introduce a flammable substance into a tire.

Igniting this substance in an effort to facilitate seating the beads is extremely unsafe. This may result in an explosion of the tire with force sufficient to cause serious personal injury or death.

This practice may also result in undetected damage to the tire or rim that could result in failure of the tire in service.

WARNING
Silicone, petroleum or solvent-based lubricants must not be used. These substances may:
• cause the tire to slip on the rim.
• have a harmful effect on the tire, tube, flap and/or rim.
• create explosive mixtures of air and vapors in the tire which may result in serious injury or death.

ADDITIONAL SAFETY CONSIDERATIONS

Several types of tire-changing equipment are available. Installers should be fully trained in procedures for the specific machine being used.

Always read and understand any manufacturer's warnings contained on the product, in customer's literature or posted on the machine.

Never mount a tire on a wheel rim that is damaged or which had been repaired by welding or brazing.

Proper inflation practices during mounting or demounting require firmly securing the tire/wheel assembly to a mounting machine; using a clip-on inflation chuck with inflation extension hose; and using a pressure regulator not to exceed 40 psi for bead seating. If a tire is mounted on a wheel using a machine that does not have a positive lock-down device to hold the tire/wheel assembly, inflation should be done in a safety cage or other restraining device.

Mount tires only on approved rims (such as proper width).

High-pressure, compact spare tires should not be used with any other wheels; nor should standard tires, snow tires, wheel covers, or trim rings be used with the high-pressure, compact spare wheels.

When servicing tires and wheels, tire service professionals should always wear the appropriate Personal Protective Equipment (PPE) including safety glasses, work gloves, hearing protection and leather work shoes or boots.
TIRE BEAD LUBRICANTS USED TO MOUNT TIRES

Use commercially available lubricants made for bead seating to seat tire beads. Also, vegetable oil and animal soap solutions may be used. If a lubricant is water-based, it should contain a rust inhibitor. Care should be exercised to avoid excessive application of lubricant to minimize moisture in the pressure chamber. Do not allow any excess lubricant to run on the inside surface of tubeless tires. When dry, the lubricant should not remain slippery. See TISB, Volume 41.

Reverse Mount Rims

Figure 1 - Standard and Reverse Mount Rims
The majority of rims are standard mount so the mounting surface (rim front) must be facing up when placed on the tire changing machine. Some custom and aftermarket rims are reverse mount so the opposite is true.

Figure 2 - Standard Mount Rim
On standard mount rims, the back side of the rim will have the appearance similar to the photo shown above. The tire must be demounted and mounted with the back side of the rim facing down on the machine.

Figure 3 - Reverse Mount Rim
On reverse mount rims, the back side of the rim will indicate the narrow ledge side as shown in the photo above. The tire must be demounted and mounted with the front of the rim facing down on the machine.
Tubeless Tires - Demounting Procedures

1. Before attempting to demount any tire, always remove the valve core and completely deflate the tire staying out of the trajectory of the valve stem/core.

2. Remove the wheel weights on the inside and outside rim flanges using the appropriate tool so the wheel is not damaged.

3. In order to unseat the top bead, position the assembly at the bead breaking shovel with the TPMS sensor, or valve stem, approximately 90 degrees from the shovel making sure the edge of the shovel does not contact the rim flange. Press the appropriate pedal or button to activate the bead breaking shovel.
Tubeless Tires - Demounting Procedures

4 Turn the tire assembly around and reposition the assembly with the shovel approximately 90 degrees from the TPMS sensor or valve stem making sure the edge of the shovel does not contact the rim flange.

5 After securing the assembly to the machine per manufacturers guidelines with the narrow ledge side of the rim facing up, lubricate the top bead with an approved rubber lubricant.

6 Position the TPMS sensor or valve stem under the demount/mount head.
Tubeless Tires - Demounting Procedures

7 Use the tire lever with a protective sleeve to pry the top bead over the demount/mount head and the top rim flange. Press the appropriate pedal to rotate the assembly in a clockwise direction to demount the top bead.

8 After demounting the top bead, reposition the TPMS sensor or valve stem under the demount/mount head.

9 Use the tire lever with a protective sleeve to pry the bottom bead over the demount/mount head and rim flange protecting the TPMS sensor. Press the appropriate pedal to rotate the assembly in a clockwise direction to demount the bottom bead.
Secure the wheel to the machine per the manufacturer’s recommendations. Before attempting to mount any tire, thoroughly clean the bead seat and rim flange areas with a wire brush as well as the rest of the rim surfaces removing any foreign material including rubber, dried lubricant, heavy paint or light rust/oxidation.

After cleaning the rim surfaces, carefully inspect the rim for any damage or repairs done by welding or brazing. If any damage or repairs are found, scrap the wheel immediately.

Lubricate both bead seat areas from the edge of both flanges to the bead humps with an approved tire bead lubricant.
**Tubeless Tires - Mounting Procedures**

**4** On low-profile and run-flat tires, the best practice is to also lubricate the transition area from the bead hump to the drop center well of the rim. Refer to TISB Volume 46, “Proper Tire Mounting of Low Aspect Ratio, High Performance Passenger and Light Truck Tires.”

**5** Before attempting to mount any tire, verify the tire bead diameter and rim diameter are exactly the same size and the tire size is correct. Inspect the inside of the tire and remove any foreign material. Apply an approved rubber lubricant to both tire beads making sure the lubricant covers the area from the bead toe to the molded centering rib on the lower sidewall. Do not allow excess lubricant to puddle inside the tire.

**6** In order to mount the bottom bead, position the TPMS sensor or valve stem opposite the demount/mount head. Place the tire on the machine according to manufacturer’s recommendations making sure the bead closest to the operator is completely in the drop center well. Some tires may include sidewall markings that indicate the inside or outside of the tire and/or the direction of rotation. If no direction of rotation marking is indicated, always mount the sidewall with the full DOT number facing out.
Tubeless Tires - Mounting Procedures

Make sure the traction point is slightly behind the TPMS sensor to protect the sensor from damage during the mounting process. The traction point is the area where the tire bead crosses the rim flange. Press the appropriate pedal to rotate the assembly and mount the bottom bead.

Reposition the TPMS sensor or valve stem opposite the demount/mount head before attempting to mount the top bead. In order to prevent damage to the tire, approved rubber lubricant should be applied to the innerliner just below the bead toe. Refer to TISB Volume 43 for full instructions. Position the tire so the bead closest to the operator is completely in the drop center well. Make sure the traction point is slightly behind the TPMS sensor or valve stem.

While rotating the assembly by pressing the appropriate pedal, maintain constant pressure on the sidewall opposite the demount/mount head to ensure the bead remains fully in the drop center well throughout the mounting process and the TPMS sensor or valve stem remains ahead of the traction point. Refer to TISB Volume 43 for full instructions. If the tire includes sidewall uniformity markings to indicate mounting position, align the marking before attempting to seat the beads.
Tubeless Tires - Mounting Procedures

10 After the tire has been mounted, inflate the tire to seat the beads making sure the tire service professional stands outside the trajectory throughout the inflation process. Do not exceed 40 psi to seat the beads. See Warnings above. If the beads do not seat at 40 psi, demount the tire and inspect the assembly for any damage and reconfirm the tire bead and rim diameters are the same. If the beads have not seated, repeat the mounting process making sure the bead and rim areas are properly lubricated.

11 For optimum uniformity, completely deflate and then re-inflate the tire. Install the correct valve core with the proper torque and adjust the inflation pressure as specified by the vehicle tire placard. The final step of the process is to install a pressure sealing valve cap.